

All the Lab's a Stage: the use of drama to promote engagement in Higher Education science

M. J. Wheeler¹, S. Prankel¹, E. Swift², J. Fisher², A. Reeves²

¹Institute of Science and the Environment, ²Institute of Humanities and Creative Arts, University of Worcester, Worcester. WR2 6AJ

Drama is well known as an effective means of introducing new concepts to an audience. Learners engage well with subjects when presented in an innovative way. This process can be successful in constructing good understanding of what can be seen as a difficult subject. We wanted to ascertain the effectiveness of Theatre in Education in promoting engagement in HE Science. In particular we wanted to know whether using drama provided a means of enthusing potential HE students who were currently studying vocational subjects at FE level. We also wanted to find out if the experience could be enhanced by providing context for drama in the guise of a pedagogic lecture, a discussion on the ethical issues brought out in the drama and a hands on practical experience. The project started by using a prewritten play 'Little Miracles' which had been funded by the Biochemical Society.

Little Miracles

This play was written by Joy Wilkinson and created by Islington Community Theatre after commissioning by the Biochemical Society. The play was designed to challenge school and college students to explore and discuss the scientific and ethical implications of embryonic stem cell research. The run of this play at University of Worcester was funded by VETNET-LLN as part of a programme of encouraging vocational FE students to engage with HE.



Professional actors from Islington Community Theatre performing 'Little Miracles' at UW

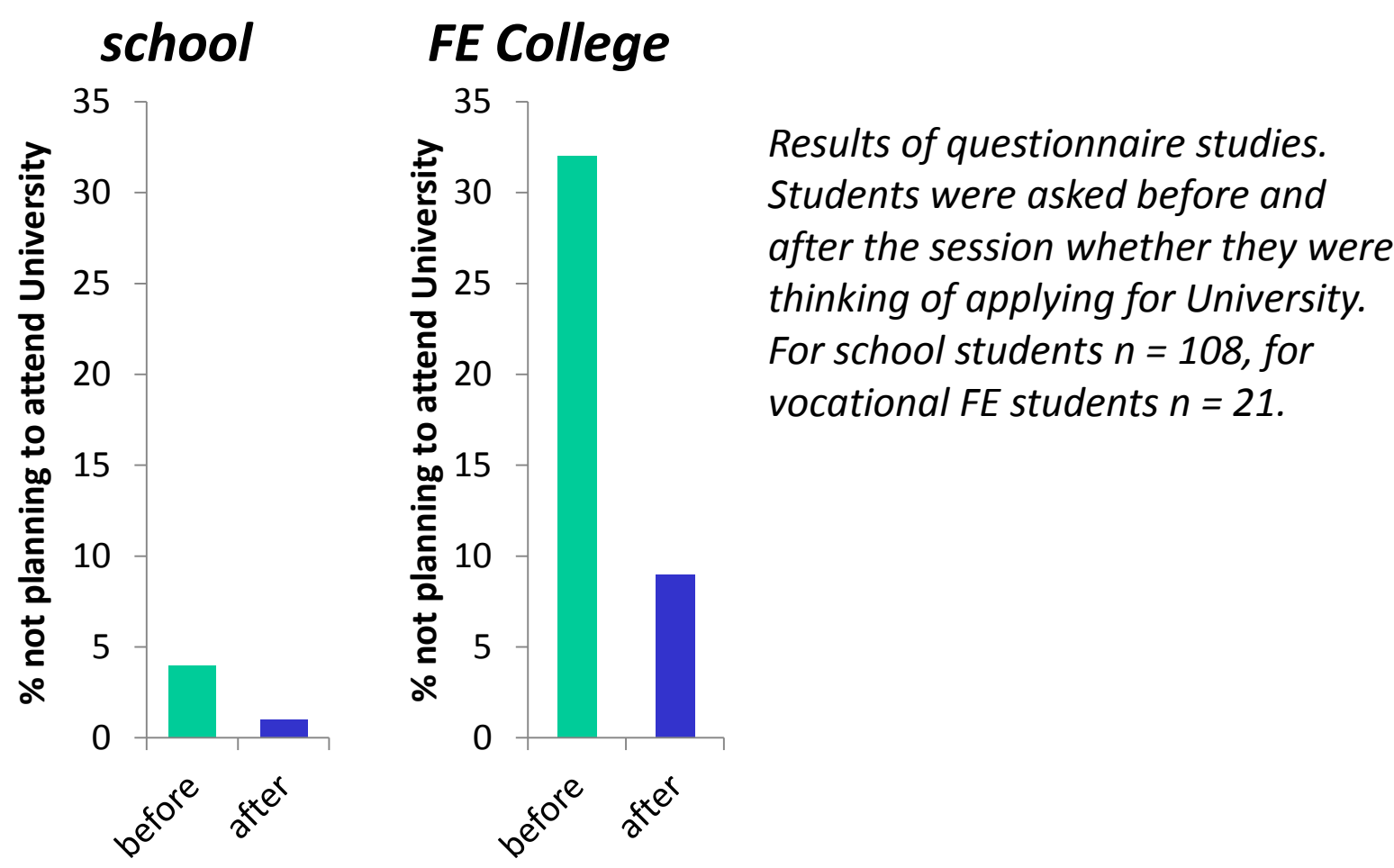
The play centred on Ayesha, an IVF baby, who becomes a scientist working on embryonic stem cell technology to treat dementia. The play had a strong ethical strand examining the use of harvesting stem cells for use in research, where life begins and the potential of technology. The play was performed by two professional actors, with a minimum of props, within the teaching laboratory at University of Worcester with school/college students sitting amidst the drama.

A total of 200 schoolchildren attended from a variety of backgrounds. Two local schools and two FE colleges attended the entire experience (including the play, contextual lecture, ethical debate and practical lab) while two further schools attended only the play and the ethical debate. One FE College was a vocational College and the results of questionnaires from these students was compared against those from school students and those from the other (non-vocational) FE college. The first comparison examined the effect of using drama on attitudes to applying for HE courses. A second comparison examined the effect of attending the whole experience to that of just attending the play and the ethical debate. We also assessed the effectiveness of the experience on direct learning around the issues of embryonic stem cell research.

Communicating science can be challenging at any educational level. We used informal and experiential learning to engage groups of potential University applicants in one project that involved staging a play in one of the teaching laboratories at the University of Worcester whilst a second project designed a play in house and took this to schools. In the first project the plot centred on stem cell research. School pupils and students from FE Colleges were offered complementary sessions including a lecture exploring the science behind stem cell research, a discussion on ethical aspects involved and a practical using university facilities. We ascertained attitudes to Higher Education in the students participating before and after the event. We found an enhanced view of the science and a highly significant change in attitude to attending University for students taking vocational subjects at FE level. The second project was aimed at exploring attitudes to ethics and animal welfare among a cohort of 15 – 18 year olds. Students engaged with the issues in the drama to a high degree. Our conclusions are that drama is an excellent way to inform potential students about higher education and HE level science in particular. Additionally we demonstrated the importance of events taking place at HE institutions in order to maximise change in attitudes to HE.

Student perception of HE science

We asked students before and after the session about their attitude to studying at University level. There was a marked difference between those students attending school compared to vocational students. Only 4% of school students were not planning on applying for HE while 33% of the students from the vocational FE college were definitely not planning to attend HE. Asking the same question after the session we saw a large drop in the number of students who were set against HE.



We asked students to list five things that they associated with 'Studying at University'. We categorised these answers into perceived 'positive' and perceived 'negative' responses into the groups in the table below. The results show that most negative perceptions are based on academic work-related issues and the perceived difficulty of this. There was a greater emphasis on the perception of University as 'too difficult' in FE College students.

Category	Schools	FE College
A - Social	8.0%	14.6%
B - Employment	16.3%	6.7%
C - Education	30.4%	16.9%
D - Life Skills	13.0%	16.9%
E - Difficulty in learning	20.7%	36.0%
F - Financial	10.4%	9.0%

Qualitative categories of students responding to the phrase 'Studying at University'. Responses were grouped into four perceived 'positive' categories (A-D) and two perceived 'negative' categories (E-F). An overall score was reached by subtracting negative totals from positive totals.

Effect on learning

60% of all students had some knowledge of stem cells either from school/college or the media. We assessed the effectiveness of the sessions by asking the students whether the experience would make them think more deeply about the issues surrounding stem cell technology. 77% (n = 71) of those that attended the complete session agreed or strongly agreed that they would think more deeply about the subject compared to 65% (n = 40) of those that attended the play only.

The majority of 'negative' perceptions of University are those about 'difficulty in learning'. Bringing students into the University to experience work at HE level combined with a fun way of learning may well reduce the perceived difficulties and this may be why the graph shows a decline in those rejecting University from the FE College pool of students. We concluded from the project that drama was a useful tool in outreach activities and one that was especially able to engage students from a vocational study background who tend to be targets for widening participation strategies. We also decided that future strategies using drama in outreach activity for HE science in the Institute should make use of a longer session including contextual activities. In agreeing that the project had been a useful one we decided to move this forward by creating a play in-house to use for outreach activity.

A Life Worth Living

We initiated a project to create a play concerned with animal welfare and ethics. We hired a professional playwright to create the drama but employed undergraduate Drama students to act and stage-manage the play and Biology undergraduates to provide the contextual lecture, run a debate on ethics and create and run a practical lab session in conjunction with the play. A decision was also made to take the sessions out to schools and colleges rather than to run them at the University.

Using undergraduate students to run this had several advantages. First, it meant that the undergraduates were able to gain real (paid!) work experience which enhanced their CV. This is important to undergraduates in Biology but was also of huge significance to Drama students who may not otherwise have had the chance at gaining professional acting experience. It also had the effect of having the audience able to identify to a greater extent with the Biologists running the sessions as they were much closer in age, therefore they acted as good role models. Additionally it freed up valuable academic staff time whilst allowing good students to represent the University to potential HE students.



UW undergraduate Drama students performing 'A Life Worth Living' in a local school

Over the two years that this latter project has run we have delivered the sessions to over 800 students. Students emphatically embraced the opportunity to discuss ethical concepts after a 'warm up phase' for both plays. They valued the use of drama as a non-formal learning environment and commented how empathy facilitated by 'real-life' scenarios made the issues presented more relevant than a traditional lecture might have done. It was important for the students to experience the 'whole package' of drama along with supporting sessions to reach deeper learning and engagement.



UW undergraduate Biology students leading a practical session at a local college

Take home messages

- 1 – Drama is an excellent way to get across science to school and college students
- 2 – Placing the drama in context by providing other activities enhances this effect
- 3 – The effect is greater on students who are traditionally less inclined to apply to HE
- 4 – Running a project like this should be inclusive – involve undergraduates

Materials are available in the form of CDs for anyone wanting to take a project like this on (contact Susanna Prankel (s.prankel@worc.ac.uk))



University of Worcester



Biochemical Society
Advancing Molecular Bioscience